Claim Listing:

Claims 1-36 (Cancelled)

37. (Original) A method of forming a porous substrate, the method comprising:

providing a substrate material comprising a surface;

dipping the substrate material in a solution including colloidal silica and a carrier, the colloidal silica having a particle size of about 12-100 nm; and

withdrawing the substrate material to provide an unsintered porous layer having a thickness of about 0.1-1 microns and a porosity of about 10-90% on the substrate material.

38. (Original) A method of forming a porous substrate, the method comprising:

providing a substrate material comprising a surface;

applying a solution including colloidal silica and a carrier to the surface of the substrate material, the colloidal silica having a particle size of about 12-100 nm;

spinning the substrate material and the applied solution to achieve a spun layer on the substrate material; and

removing the carrier from the spun layer to provide an unsintered porous layer having a thickness of about 0.1-1 microns and a porosity of about 10-90% on the substrate material.

39. (Currently Amended) A method of forming a porous substrate comprising different monomer sequences, the method comprising:

immobilizing different monomer sequences on a porous substrate ~~of claim 1~~ comprising a support region and a porous region on the support region, the porous region being primarily inorganic and having a surface wherein polymers are placed such that polymer arrays are formed, the porous region comprising pores of a pore size of about 2 nm - 500 nm, a porosity of about 10 - 80%, and a thickness of about 0.01 μm to about 70 μm.

40. (Currently Amended) A method of synthesizing polymers on a porous substrate, the method comprising:

a) providing a porous substrate comprising a support region and a porous region on the support region, the porous region being primarily inorganic and having a surface wherein polymers are placed such that polymer arrays are formed, the porous region comprising pores of a pore size of about 2 nm - 500 nm, a porosity of about 10 - 80%, and a thickness of about 0.01 μm to about 70 μm;

[[a)]] b) generating a pattern of light and dark areas by selectively irradiating at least a first area of [[a]] said surface of [[a]] said porous substrate ~~of claim 1~~, said surface comprising immobilized monomers on said surface, said monomers coupled to a photoremovable protective group, without irradiating at least a second area of said surface, to remove said protective group from said monomers in said first area;

[[b)]] c) simultaneously contacting said first area and said second area of said surface with a first monomer to couple said first monomer to said immobilized monomers in said first area, and not in said second area, said first monomer having said photoremovable protective group;

[[c)]] d) generating another pattern of light and dark areas by selectively irradiating with light at least a part of said first area of said surface and at least a part of said second area to remove said protective group in said at least a part of said first area and said at least a part of said second area;

[[d)]] e) simultaneously contacting said first area and said second area of said surface with a second monomer to couple said second monomer to said immobilized monomers in at least a part of said first area and at least a part of said second area; and

[[e)]] f) performing additional irradiating and monomer contacting and coupling steps so that a matrix array of different polymers is formed on said surface, whereby said different polymers have sequences and locations on said surface defined by the patterns of light and dark areas formed during the irradiating steps and the monomers coupled in said contacting steps.

41. (Original) The method of claim 40, wherein the monomers are selected from the group consisting of: nucleotides, amino acids, and monosaccharides.

42. (Original) The method of claim 40, wherein the substrate has linker molecules on its surface.

43. (Currently Amended) A method of forming polymers having different monomer sequences on a porous substrate, the method comprising:

providing a porous substrate ~~of claim 1~~ comprising a support region and a porous region on the support region, the porous region being primarily inorganic and having a surface wherein polymers are placed such that polymer arrays are formed, the porous region comprising pores of a pore size of about 2 nm - 500 nm, a porosity of about 10 - 80%, and a thickness of about 0.01 μm to about 70 μm, the porous substrate comprising a linker molecule layer ~~thereon~~ on the porous substrate, said linker molecule layer comprising a linker molecule and a protective group;

applying a barrier layer overlying said linker molecule layer, said applying step forming selected exposed regions of said linker molecule layer;

exposing said selected exposed regions of said linker molecule layer to a deprotecting agent to remove the protective group; and

coupling selected monomers to form selected polymers on the substrate.

44. (Currently Amended) The method of claim 43, wherein the deprotection agent is in the vapor phase or the liquid phase.

45. (Original) The method of claim 43, wherein said deprotection agent is an acid.

46. (Currently Amended) The method of claim 45, wherein the acid is selected from [[a]] the group consisting of trichloroacetic acid, dichloroacetic acid, and HCl.

47. (Original) The method of claim 43, wherein the monomers are selected from the group consisting of nucleotides, amino acids, and monosaccharides.

48. (Currently Amended) A method for detecting a nucleic acid sequence, the method comprising:

(a) providing an array of nucleic acids bound to ~~the~~ a porous substrate ~~of claim 1~~ comprising a support region and a porous region on the support region, the porous region being primarily inorganic and having a surface wherein polymers are placed such that polymer arrays are formed, the porous region comprising pores of a pore size of about 2 nm - 500 nm, a porosity of about 10 - 80%, and a thickness of about 0.01 μm to about 70 μm;

(b) contacting the array of nucleic acids with at least one labeled nucleic acid comprising a sequence substantially complementary to a nucleic acid of said array, and

(c) detecting hybridization of at least the labeled complementary nucleic acid to the nucleic acids of said array.

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